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**Second Five-Year Review Report
For
Waste, Inc. Landfill Superfund Site
Michigan City, Indiana
LaPorte County**

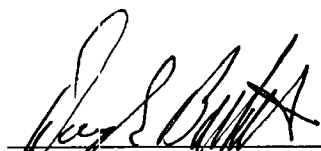
September 2006

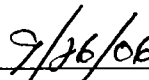
PREPARED BY:

**United States Environmental Protection Agency
Region 5
Chicago, Illinois**

Approved By:

Date:


for Richard C. Karl, Director
Superfund Division


9/26/06

Executive Summary

The remedy for the Waste, Inc. Landfill site in Michigan City, Indiana, included the installation of a Subtitle D cap, meeting the requirements of 329 Indiana Administrative Code (IAC) 2-14-19(3)(b) and 329 IAC 19(3)(a)-(c), the collection of shallow groundwater and leachate via an installed collection trench with direct discharge to the Sanitary District of Michigan City, collection of landfill gas, rerouting of the onsite storm sewer, removal of an on-site underground storage tank, abandonment of an onsite groundwater well, the posting of fish advisory signs along Trail Creek near the Site, monitoring of groundwater and surface water, and the implementation of institutional controls.

The site achieved construction completion with the signing of the Preliminary Closeout Report on December 18, 1997. The first five-year review was completed on September 27, 2001 and is the trigger for this five-year review.

The remedy is currently protective of human health and the environment because there is no evidence of exposure to site related contaminants and the existing use is consistent with the stated objectives of the required use restrictions. All threats at the site have been addressed through the construction of the landfill cap, the collection of shallow groundwater and leachate with direct discharge to the Michigan City Sanitary District, and the collection of landfill gas, and the maintenance of the site perimeter fencing and signage.

Further, long term protectiveness of the remedy requires continued groundwater, surface water, landfill gas, and landfill cap monitoring as outlined in the site O&M plan and continued evaluation of existing institutional controls to prevent interference with the landfill cap and other remedy components and to ensure that the ICs are effective and in compliance with land use restrictions. Long-term protectiveness will be ensured by maintaining effective ICs as well as maintaining the site remedy components. The results of the IC updates will be summarized in the next five-year review. The results of the evaluation on the updated arsenic standard will also be summarized in the next five-year review.

Five-Year Review Summary Form

Site name (from WasteLAN): Waste, Inc. Landfill

EPA ID (from WasteLAN): IND980504005

Region: 5 **State:** IN **City/County:** Michigan City/LaPorte County

NPL status: Final ☒ Deleted Other (specify)

Remediation status (choose all that apply): Under Construction Operating ☒ Complete

Multiple OUs? YES ☒ NO

Construction completion date: 12/18/1997

Has site been put into reuse? YES X NO

Lead agency: EPA ☒ State Tribe Other Federal Agency

Author name: Dion Novak

Author title: Remedial Project Manager

Author affiliation: U. S. EPA, Region 5

Review period: 04 /06/2006 to 08 /15/ 2006

Date(s) of site inspection: 05 /18/2006

Type of review:

X Post-SARA Pre-SARA NPL-Removal only
Non-NPL Remedial Action Site NPL State/Tribe-lead
Regional Discretion

Review number: (first) (second) X 3 (third) Other (specify)

Triggering action:

Actual RA Onsite Construction

Actual RA Start at OU# _____

Construction Completion

x Previous Five-Year Review Report

Other (specify)

Triggering action date (from WasteLAN): 09/27/2001

Due date (five years after triggering action date): 09 /27 /2006

Five Year Review Summary Form (cont'd)

Issues:

- 1) Completion of IC study including updated title commitment
- 2) Update site O&M plan to include language on future IC updates and IC monitoring
- 3) Creation of a map depicting areas where ICs are required, including further clarification of adverse possession quit claim
- 4) Implementation of new restrictive covenants on both site parcels
- 5) Updated MCL for arsenic and its impact on remedy protectiveness

Recommendations and Follow-up Actions

- 1) Completion of IC study, including title commitment
- 2) Update of site O&M plan to include language on future IC updates and IC monitoring
- 3) Creation of a site IC map depicting areas where ICs are required
- 4) Implementation of new restrictive covenants on both site parcels
- 5) Further analysis of impact of revised arsenic MCL on remedy protectiveness
- 5) Continued operation of shallow groundwater and leachate collection system
- 6) Remedy monitoring including annual updates to trend analyses
- 7) Site deletion

Protectiveness Statement

The remedy is currently protective of human health and the environment because there is no evidence of exposure to site related contaminants and the existing use is consistent with the stated objectives of the required use restrictions. All threats at the site have been addressed through the construction of the landfill cap, the collection of shallow groundwater and leachate with direct discharge to the Michigan City Sanitary District, and the collection of landfill gas, and the maintenance of the site perimeter fencing and signage.

Further, long term protectiveness of the remedy requires continued groundwater, surface water, landfill gas, and landfill cap monitoring as outlined in the site O&M plan and continued evaluation of existing institutional controls to prevent interference with the landfill cap and other remedy components and to ensure that the ICs are effective and in compliance with land use restrictions. Long-term protectiveness will be ensured by maintaining effective ICs as well as maintaining the site remedy components. The results of the IC updates will be summarized in the next five-year review. The results of the evaluation on the updated arsenic standard will also be summarized in the next five-year review.

I. Introduction

The purpose of this five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five Year Review reports. In addition, Five Year review reports identify issues found during the review, if any, and identify recommendations to address them.

The Agency is preparing this Five Year review report pursuant to CERCLA Section 121 and the National Contingency Plan (NCP). CERCLA Section 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with Section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP; 40 CFR Section 300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The United States Environmental Protection Agency (EPA) Region 5 conducted the Five Year review of the remedy implemented at the Waste, Inc. Landfill (WIL) site in Michigan City, Indiana. This review was conducted by the Remedial Project Manager (RPM) for the site from April 2006 to August 2006. This report documents the results of that review.

This is the second five-year review for the WIL site. The triggering action for this statutory review was the completion of the previous 5-year review on September 27, 2001. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

II Site Chronology

- | | |
|-----------|---|
| 1965-1972 | Dis-Pos-All Services Division, a division of Northern Indiana Steel Supply Company (NISSCO) operated site as a landfill |
| 1972 | NISSCO sold disposal operations to Waste, Inc. |

1972-1982	Waste, Inc. operated site as a landfill
8/82	Consent order signed with Waste Inc. closing the site but allowing Waste Inc. to accept foundry sand for disposal and to begin covering the site with clay
1983	Court order demanded proper closure of the site
1/85	USEPA Hazard Ranking Score (HRS) evaluation of the site resulting in an HRS score of 50.63
7/87	Site placed on the National Priorities List (NPL).
3/87 to 9/93	Remedial Investigation/Feasibility Study (RI/FS) conducted at site pursuant to Administrative Order on Consent (AOC).
8/94	Record of Decision (ROD) signed.
1/95	Unilateral Administrative Order (UAO) became effective, requiring responsible parties to perform remedial design, remedial action, and operation and maintenance activities.
8/96	Remedial design approved by USEPA
9/96	Commencement of on-site remedial action activities
9/96-1/97	Phase 1 construction: clearing and grubbing; waste reconsolidation and regrading; leachate and shallow groundwater collection trench installation; sliplining of onsite sewer; abandonment of onsite well; posting of fish advisory signs; removal of onsite underground fuel storage tank.
4/97-9/97	Phase 2 construction: installation of landfill gas collection system; replacement of site fencing; construction of multi-layer cap.
12/97	Preliminary Closeout Report (PCOR) completed
12/00	UAO converted to Consent Decree (CD)
9/01	First Five Year Review completed.
12/01	Report addressing recommendations from first five-year review
5/06	Second Five Year review site inspection

III Background

Physical Characteristics

The WIL site is located in Laporte County, in the town of Michigan City, Indiana. The site is approximately 32 acres, which is comprised of two properties, the original Waste, Inc. property and the Lin-See Ltd. property (located immediately adjacent to the east), which was added during the RI/FS. Its approximate boundaries are the US Highway 12 to the northwest, Sullair Corporation to the east, Trail Creek to the east and south, and Lake Aluminum (property formerly owned by NISSCO) to the west (See Figure 1).

Land and Resource Use

The land immediately surrounding the WIL site is predominantly industrial. The 32 acre site is comprised of the Waste, Inc. property and the Lin-See property, is bounded by US Highway 12 to the northwest, Sundstrand Corporation to the east, Trail Creek to the east and south, and Lake Aluminum to the west. Downtown Michigan City, which is a mix of light industrial and commercial uses, is located approximately ½ mile to the west of the site.

History of Contamination

The WIL site consisted of agricultural land with some lowlands in 1939 prior to its development as a landfill. From 1965 to 1972, the site was operated as an unpermitted landfill by Dis-Pos-All Services Division, a division of NISSCO. From 1972 to 1982, Waste Inc. operated the landfill at the site. In August 1982, the site was closed by court order, which also allowed the acceptance of foundry sand as cover material and required Waste Inc. to cover the site with clay. In 1983, in response to State of Indiana enforcement actions, a court order demanded proper closure of the site.

Initial Response

The site was added to the final NPL in January 1985. Soil and groundwater samples collected at the site were found to be contaminated with volatile organics, semi-volatile organics, and inorganic compounds. The presence of these contaminants at the site was determined to pose unacceptable risks to human health and the environment.

Basis for Taking Action

Contaminants

Hazardous substances that have been released at the site in each media include:

Soil

Benzene
Polynuclear aromatic hydrocarbons (PAHs)
PCBs
Arsenic
Manganese
Chromium
Cadmium
Mercury
Antimony

Groundwater

Benzene
Polynuclear aromatic hydrocarbons (PAHs)
PCBs
Arsenic
Manganese
Chromium
Cadmium
Mercury
Antimony

Site risk assessment summary

Exposure to soil, groundwater, and fish from Trail Creek was associated with significant human health risks, due to exceedances of EPA's risk management criteria for either the average or reasonable maximum exposure scenarios, as summarized in the site Remedial Investigation Report.

Unacceptable carcinogenic risks at the site included:

Exposure to contaminated soil -*current risk* 2×10^{-5} ; *future risk* 3×10^{-4} - major contributors-carcinogenic PAHs, PCBs and arsenic

Ingestion of contaminated groundwater - *future risk* 7×10^{-4} - major contributor was carcinogenic PAHs

Ingestion of fish - *future risk* 5×10^{-4}

Unacceptable non-carcinogenic risks at the site included:

Exposure to contaminated soil (*future risk Hazard Indices (HI) = 3.5*)-major contributors-PCBs, antimony, arsenic and cadmium



**Waste Inc. Landfill
LaPorte County, IN**

IND980504005



Legend

 Waste Inc. Landfill Boundary

0 200 400
Feet



RPM: Dion Novak

Created by Sarah Backhouse
U.S. EPA Region 5 on 9/22/06
Image Date: 2005

Exposure to contaminated groundwater (*future risk HI = 12*) – major contributor-antimony

Ingestion of fish – *future risk HI = 6.6*

IV Remedial Actions

Remedial Action Objectives

Containment of shallow groundwater and leachate at property boundary

Leachate discharge to Sanitary District comply with POTW discharge limits outlined in ROD

Landfill cap over landfilled contents meeting requirements of 329 IAC 2-12-19 (3)(b) and 329 IAC (3)(a)(c)

Remedy Selection

On August 29, 1994, a Record of Decision (ROD) was signed by the Regional Administrator for the site calling for the following:

- 1) Installation of a Subtitle D cap, meeting the requirements of 329 Indiana Administrative Code (IAC) 2-14-19(3)(b) and 329 IAC 19(3)(a)-(c)
- 2) Containment of site shallow groundwater and leachate via an installed collection trench with direct discharge to the Sanitary District of Michigan City
- 3) Collection of landfill gas
- 4) Rerouting the onsite storm sewer
- 5) Removal of an underground fuel storage tank
- 6) Abandonment of an onsite groundwater well
- 7) Posting of fish advisory signs along Trail Creek
- 8) Monitoring of groundwater and surface water.
- 9) Implementation of institutional controls such as fencing, deed restrictions and groundwater monitoring

Remedy Implementation

The remedy was constructed by the site PRP group in two phases.

Phase 1 (Sept 1996 to Jan 1997) included the following activities:

- Clearing and grubbing of on-site vegetation
- Waste reconsolidation and regrading
- Installation of a leachate and shallow groundwater collection system, including the construction of a dedicated discharge from the site to the Sanitary District of Michigan City
- Sliplining of the on-site storm sewer to allow for its continued use
- Proper abandonment of the onsite monitoring well
- Proper removal of the onsite underground fuel storage tank
- Posting of fish advisory signs along Trail Creek

Phase 2 (April 1997 to Sept 1997) included the following activities:

- Final grading of the site
- Installation of a landfill gas collection and disposal system
- Replacement of site fencing
- Construction of a multi-layer cap, complying with the requirements of 329 IAC 2-14-19(3)(b) and 329 IAC 19(3)(a)-(c)

The site achieved construction completion status when the PCOR was signed on December 18, 1997.

The first five-year review stated that EPA and the State have previously determined that all RA construction activities were performed in accordance with specifications.

System Operation/Operation and Maintenance (O&M)

Primary activities associated with site O&M, as performed by the site PRP group include:

- Landfill cap maintenance
- Groundwater and surface water monitoring
- Landfill gas monitoring
- Surface water controls-control of siltation and erosion of the landfill cap

Chronology of significant events following remedy construction:

July 1997: Trench barrier integrity testing showed trench was achieving design standards.

Jan. 1998: EPA approved reduction in reporting frequency from monthly to quarterly

Feb. 1999: EPA approved change in O&M contractor to Weaver, Boos and Gordon (WBG)

July 1999: EPA approved change in groundwater monitoring program, reducing monitoring locations and some analytical requirements

Oct. 2001: Leachate collection trench inspected and cleaned

Nov. 2001: Video inspection of storm sewer completed showing that the sewer is operating as expected, confirming the integrity of the sliplining performed as part of the remedial action.

Dec. 2001: Barrier integrity video information demonstrated that barrier wall was continuing to achieve ROD performance standard of preventing shallow groundwater and leachate from migrating off-site.

Jan 1, 2005: EPA approved change in O&M contractor to LFR

May 2006: 5 Year Review site inspection

Sept. 2006: Site data summary compiled and trend analysis performed for monitoring wells

V. Progress since the Last Five-Year Review

The previous 5-year review was completed on September 26, 2001. This review found that the remedy was providing protection of human health and the environment by achieving the performance standards outlined in the site ROD.

The review identified the following issues in the recommendations section for action before the next five-year review.

Recommendation 1: Leachate and shallow groundwater collection system should continue to be operated, providing downgradient containment of site contamination:

Response 1: The collection system has operated continuously since the last five-year review. The collected groundwater/leachate continues to meet Sanitary District pre-treatment standards for direct discharge. As evidence that the on-site containment of groundwater is lowering on-site groundwater concentrations, the Sanitary District has reduced the list of parameters to be monitored as leachate quality has improved. (See Table 1) In addition, the collection trench was cleaned in October 2001, and no obstructions were noted at that time that would impede its performance.

**Table 1 Leachate Discharge Permit Requirements
Waste, Inc. Site**

Parameter	ROD	9/13/96 ⁽¹⁾	3/3/99 ⁽²⁾	9/13/00 ⁽³⁾	9/28/04 ⁽⁴⁾
Cyanide	1.0	1.0	NP	NP	NP
Cadmium	0.6	0.6	NP	NP	NP
Chromium	7.0	7.0	NP	NP	NP
Copper	3.4	3.4	NP	NP	NP
Lead	0.6	0.6	NP	NP	NP
Nickel	3.0	3.0	NP	NP	NP
Silver	0.05	0.05	NP	NP	NP
Zinc	4.2	4.2	NP	NP	NP
Phenols	0.5	0.5	NP	NP	NP
PCBs	ND	No trace	No trace	No trace	No trace
COD	NL	500 ⁽⁵⁾	NP	NP	NP
TSS	NL	250 ⁽⁵⁾	NP	NP	NP
Phosphate	NL	8.0	NP	NP	NP
NH3	NL	20 ⁽⁵⁾	20 ⁽⁵⁾	20 ⁽⁵⁾	20 ⁽⁵⁾
Arsenic	0.29	0.29	0.29	0.29	0.29
Mercury	0.06	NP	0.06	0.06	0.06
Molybdenum	NL	NL	report ⁽⁶⁾	report ⁽⁶⁾	NP
Selenium	NL	NL	report ⁽⁶⁾	report ⁽⁶⁾	NP
PH	5-10	5-10	NP	NP	NP

All units reported as mg/l or parts per million (ppm)

NL-no limits established

NP-not permitted by Michigan City Sanitary District

ND-not detected

- (1) original permit for leachate discharge, expiration 9/13/00
- (2) permit modification from Sanitary District based on site monitoring results
- (3) permit renewal, expiration 9/13/04
- (4) permit renewal, expiration 9/28/08
- (5) permit limits-any exceedances subject to surcharge fee
 - COD-chemical oxygen demand
 - TSS-total suspended solids
 - NH3-ammonia
- (6) report-District requires concentrations be reported

Recommendation 2: Prepare a trend analysis report for groundwater and surface water, which should include a summary of groundwater elevation data to demonstrate containment of site groundwater.

Response 2: A trend analysis was completed in December 2001 (using data from 1990-2001) and also for this five-year review (using data from 1996-2005). The results of the analyses confirm that the barrier wall is containing site groundwater and leachate and also that on-site monitoring well contaminant levels are decreasing, which provide additional support to demonstrate remedy protection. Water levels downgradient of the barrier wall also confirm that it is properly containing site groundwater. In addition, surface water analytical results continue to show no impacts from the site.

Recommendation 3: A barrier wall integrity video to check for leaks and to determine if the collection trench should be cleaned should be completed every five years. This was to be completed by December 2001 and should also include the sliplined storm sewer.

Response 3: The video of the storm sewer was completed on November 8, 2001 and did not find any breaks or cracks in the sewer line or large accumulations of sediment, indicating that the sliplined sewer was performing properly and its integrity confirmed. The collection trench was hydraulically tested at that time. Weaver Boos reviewed leachate water levels which did not indicate any potential obstructions in the barrier trench so trench cleaning commenced with water being introduced into the trench, both gravity fed and ultimately including water under pressure. The results of this activity indicated that the cleaning was successful, water was infiltrating along the entire length of the trench, and that collection trench integrity was intact.

Recommendation 4: Landfill gas PVC casing removal documentation was to be provided to EPA by December 2001, including wells where the casing was not removed-this was identified as a potential O&M issue. MW-5S and MW-5D were to be included in the monitoring program again as their omission was not approved by EPA.

Response 4: The documentation was provided to EPA in a letter dated November 21, 2001. The protective casings on the gas wells had shifted after installation, impeding proper operation and sampling of the wells. Since the original purpose of these protective casings was for security while the remedy was completed, their removal did not compromise the remedy and prevented future operational issues.

MW-5S and MW-5D were reintroduced into the site-monitoring program and have been sampled in accordance with the O&M monitoring schedule since that date. MW-5S had insufficient water available for sampling during the previous two sampling events, which was why it was not sampled at those times.

VI Five-Year Review Process

Administrative Components

The five-year review team was led by Dion Novak, RPM for the WIL site. Tom Burck from the Indiana Department of Environmental Management participated in the site visit and Jessica Fliss assisted in the review as the representative for the support Agency.

This five-year review process began on April 6, 2006 with a notification letter to the State project manager and ended on August 15, 2006. The review team established the review schedule whose components included:

- Site inspection
- Document Review
- Data Review and Summary Report
- Five Year Review report development and review

Community Involvement

A notice was placed in the Michigan City News Dispatch on May 5, 2006, announcing that the Five Year Review report for the WIL site was underway, and that the results of the review and the report would be available to the public at the site repositories, at EPA Region 5 offices, and online at www.epa.gov/region5/superfund/fiveyear/fyr_index.html.

Document Review

This five-year review consisted of a review of relevant site documents including

- Previous five-year review report dated September 27, 2001
- Correspondence related to ongoing operation and maintenance activities
- Data summary tables, dated July 2006
- Institutional control updated information (Sept 2006)

Data Review

Groundwater monitoring

Groundwater monitoring has been conducted at the site since the start of the RI. Recent groundwater monitoring results show consistent concentrations over time. The data summary report includes a trend analysis which showed: contaminant concentrations trended higher immediately after the cap installation showing that the dilution effect from rainwater mixing with the landfill contents had been reduced and; subsequent trends at the majority of the monitoring wells were consistently downward, which demonstrates that the installation of the multi-layer cap has effectively reduced the infiltration of rainwater through the landfill contents, and reduced the

leachate concentrations at the site. Both of these situations were anticipated and their occurrence indicates that the remedy is achieving the desired results.

Site Inspection

An inspection at the site was conducted on May 18, 2006 by the RPM, the PRP contractor, representatives of the PRP steering committee, the EPA site attorney, and the project manager from the IDEM. The purpose of the inspection was to assess the protectiveness of the remedy, including the presence and integrity of site fencing to restrict access, the integrity of the cap, and the condition of monitoring wells.

No significant issues have been identified at any time regarding the landfill cap, the drainage structures, or the site fencing. All were intact, including signage along the length of the site fence. Periodic fence repair is necessary due to branches damaging the fence during storm events-these repairs are typically very localized and completed upon identification. The cap was intact and cover vegetation continues to remain consistent across the site.

Institutional controls

Institutional controls (ICs) are non-engineered instruments, such as administrative and legal controls that help to minimize the potential for exposure to contamination and that protect the integrity of the remedy. ICs are required to assure long-term protectiveness for any areas, which do not allow for unlimited use or unrestricted exposure (UU/UE) (See Figure 1). ICs are also required to maintain the integrity of the remedy. Figure 1 will be updated as a result of the IC study required in Section IX of this review.

The site ROD required “institutional controls such as fencing, deed restrictions and groundwater monitoring.” The “deed restrictions” were to be placed on both the Waste, Inc. property and the Lin-See, Ltd. Properties to “limit the use of the site for construction or other development, and...prohibit the use of groundwater beneath the site for drinking water purposes.” A Subtitle D landfill cap was placed over the site and contaminated groundwater and leachate is contained onsite and disposed directly to the Michigan City Sanitary District via a dedicated sewer line.

The National Contingency Plan (NCP) uses the term “deed restrictions” generally as a type of institutional control. The term “deed restrictions” has no clear meaning in traditional property law but is used to refer generally to proprietary controls such as restrictive covenants and easements on the property.

Pursuant to an UAO issued on December 8, 1995, and adopted and superceded by a Consent Decree on December 22, 2000, the owners of the site were to implement a form of restrictive covenant attached as Appendix A to the SOW. The following discusses ICs on each site parcel.

Waste Inc property-east half: The then owner of the site, Land Reclamation, Inc., executed and recorded as of February 7, 1996, a “Declaration of Restriction on Use of Real Property” which set forth restrictions which meet the requirements of the ROD and consent decree. The

Declaration is signed by Land Reclamation, Inc. as owner of the property. No parties are identified as grantees, nor are any third party beneficiaries named. The Declaration purports to run with the land. It provides terms for modification or termination of the Declaration. It also provides for US EPA, the State of Indiana, or other PRPs who are defendants in the consent decree to "prosecute appropriate proceedings...in equity" if the restrictions are violated by the Owner, its successors and assigns." The Declaration is recorded, so should provide notice of the restrictions to prospective purchasers, though no title commitment has been obtained to date. The restriction contains a notation that the signature is not notarized and was recorded without indicating who prepared the document. Under Indiana law, a Declaration that is not "acknowledged" before a notary or by other acceptable means does not meet the current Indiana statutory requirements for recording (IC 32-20-3-2, 32-21-2-3). IC 32-21-2-11(c) currently provides that an unacknowledged instrument is not constructive knowledge to a purchaser, so that anyone not in privity with the grantor, or with actual knowledge of the restriction, cannot have the restriction enforced against him.

A title search reveals that this parcel is now owned by the County of LaPorte under a tax title deed recorded January 30, 2004. A small portion of the original Waste Inc. property situated outside of the restricted area has been claimed by adverse possession in a quit claim deed recorded on January 25, 1996, with Roger Piotrowski as grantor and Roger and Shelley Piotrowski, Husband and Wife, as grantees.

Lin-See Ltd. Property-west half: No Declaration has been filed or recorded for this portion of the site. The then owner, Lin-See Corporation, gave and recorded a Notice of Administrative Order for Remedial Design and Remedial Action as of January 16, 1996. This Notice references the December 8, 1995 UAO and its use restrictions. This Notice is not an enforceable document, but does provide notice of the land use restrictions and the remedial action on the property to anyone who reviews the records. The Notice does not comply with the ROD requirement to have "deed restriction" on the property. The Notice was provided by Lin-See Corporation 13 days after Lin-See Corporation quit claimed the property to L-S. LLC, which is the most recent owner of record.

EPA has requested that the PRPs complete an IC study to ensure enforceability and effectiveness, including implementation of new restrictive covenants on the Waste, Inc. and Lin-See properties. The IC study will include an updated title commitment.

The site O&M plan requires modification to include the following: mechanisms to ensure regular inspection of ICs at the site, annual certification of IC viability, and a communication plan to ensure that ICs are properly monitored and reported.

VII Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

Yes.

The review of documents, ARARs, risk assumptions, and the results of the site inspections indicate that the remedy is functioning as intended by the ROD. The stabilization and capping of contaminated soils has achieved the remedial action objectives to prevent the direct contact with, or ingestion of contaminants in soil at the site.

There are no breaches to the cap and cover vegetation is uniform across the site. This cap must remain in place indefinitely to prevent any contact with waste materials. Site access is restricted at present with fencing and signage, as required by the ROD.

Although the ICs have not been fully implemented at the site, they are protective in the short term. The site is fenced and signs exist as required in the ROD. The PRPs performing the O&M of the remedy are routinely inspecting, sampling, and monitoring the site pursuant to their obligations under the consent decree. The ICs currently provide notice of the land use restrictions and the remedial action on the property to anyone who reviews the records. To date, compliance with the land use restrictions contained in the ROD, SOW and consent decree is occurring and because the PRPs are required to perform O&M for a minimum of 30 years, compliance is expected to continue.

ICs need to be modified and created to provide enforceable mechanisms to properly restrict site use.

IC maps will be created which depict the details of the areas where the use restrictions are required. The IC maps, once completed, will be publicly available and on EPA's Superfund Data Management System (SDMS). These maps will serve as an additional IC as an informational control.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Yes.

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. The RAOs in place at the time of remedy selection remain valid.

Changes in standards and to Be Considereds

There has been one change in ARARs at the site subsequent to the first five review for the site. Indiana Administrative Code (IAC) 2 has been repealed and replaced by IAC 10. The State of Indiana has determined that the site remedy is still in compliance with the ARAR as the site closure was completed in accordance with the applicable regulations in effect at the time of closure. This change in ARARs does not affect the protectiveness determination of this review.

Also, the MCL for arsenic has been changed from 50 ppb as outlined in the ROD to its current level of 10 ppb, which became effective in January 2006. The impacts on the long term protectiveness of the deep groundwater component of the site remedy from this change in

standard need to be fully evaluated. The site groundwater is being properly contained as outlined above.

Changes in exposure pathways

There have been no changes in exposure pathways since the ROD was signed.

Changes in toxicity and other contaminant characteristics

There have been no changes in contaminant characteristics during this reporting period that would impact remedy protectiveness.

Changes in risk assessment methods

There have been no changes in risk assessment methods that would impact remedy protectiveness.

Expected progress towards meeting RAOs

The remedy performance is progressing as expected and it is anticipated to continue to do so. Contaminant concentrations in on-site monitoring wells continue to trend downward and leachate quality is improving, as evidenced by the reduced discharge permit parameter list required by the Sanitary District summarized above.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No.

There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the site that would impact the protectiveness of the remedy.

Contaminant concentrations in on-site monitoring wells are decreasing and leachate quality is improving, demonstrating that the landfill cap is achieving design objectives. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

Fencing and signage was installed as part of remedy construction and is currently in place at the site and functioning as designed. Deed restrictions are in place and their effectiveness is currently being reevaluated.

The ICs for the site are in the process of being updated to ensure their viability and enforceability as well as their ability to ensure the protectiveness of the remedy over the long term. The current deed restrictions will be updated or replaced so that they are consistent with Indiana law and satisfy the ROD and CD requirements.

VIII Issues

Issue	Affect short-term protectiveness (y/n)	Affect long term protectiveness (y/n)
Completion of IC study including updated title commitment	No	Yes*
Update site O&M plan to include language on future IC updates and IC monitoring	No	Yes
Creation of a map depicting areas where ICs are required, including further clarification of adverse possession quit claim deed	No	Yes
Implementation of new restrictive covenants on both site parcels	No	Yes*
Updated MCL for arsenic and its impact on remedy protectiveness	No	Yes**

* Not an issue if ICs are successfully updated

**Results of analysis will determine any impact on long-term protectiveness

IX Recommendations and Follow-up actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N) Current, Future
Completion of IC study including updated title commitment ^A	Ensure that IC's are properly recorded, effectiveness monitored, and enforceable	PRPs	EPA / IDEM	Jan 31, 2007	N, Y ^B
Update O&M plan	Ensure that ICs are enforceable and current	PRPs	EPA/ IDEM	March 2007	N, Y ^B
Creation of a map showing where ICs are required	To properly show areas where deed restrictions are required and to resolve area affected by quit claim deed	PRPs	EPA/ IDEM	Jan 31, 2007	N, Y ^B
Implementation of new restrictive covenants on both site parcels	To cure defects in current restrictions and to conform to current Indiana law.	PRPs	EPA/IDEM	Jan 31, 2007	N, Y ^C
Further analysis of new arsenic standard	To determine any impacts to long term protectiveness of remedy	PRPs	EPA/ IDEM	Jan 31, 2007	N, Y [*]

^A To determine whether there are any inconsistent prior-in-time encumbrances at the site and whether deed restrictions are in place; 2) evaluation of existing ICs to determine effectiveness and enforceability; 3) updating site ICs, if needed, to ensure that the ICs are properly recorded to give notice to future landowners for

information relevant to land use restrictions and are enforceable; 4) preparation of accurate maps of all areas that require land and groundwater use restrictions; and 5) provision for revision to the O&M plan to include mechanisms to ensure regular inspections of ICs at the site, an annual certification to EPA that ICs are in place and effective, and a communication plan

^B If ICs are not properly maintained and enforced

^C Further evaluation needed

Recommendations not affecting the protectiveness of the selected remedy

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date
Continued operation of shallow groundwater and leachate collection system	Continued pursuant to consent decree	PRPs	EPA/ IDEM	As required by O&M plan
Remedy monitoring, including annual updates to trend analyses	Continued pursuant to consent decree	PRPs	EPA/ IDEM	As required by O&M plan
Site deletion	Pursuant to consent decree	EPA	IDEM	June 2007

X Protectiveness Statement

The remedy is currently protective of human health and the environment because there is no evidence of exposure to site related contaminants and the existing use is consistent with the stated objectives of the required use restrictions. All threats at the site have been addressed through the construction of the landfill cap, the collection of shallow groundwater and leachate with direct discharge to the Michigan City Sanitary District, and the collection of landfill gas, and the maintenance of the site perimeter fencing and signage.

Further, long term protectiveness of the remedy requires continued groundwater, surface water, landfill gas, landfill cap monitoring, and continued operation of the shallow groundwater and leachate collection system as outlined in the site O&M plan and continued evaluation of existing institutional controls to prevent interference with the landfill cap and other remedy components

and to ensure that the ICs are effective and in compliance with land use restrictions. Long-term protectiveness will be ensured by maintaining effective ICs as well as maintaining the site remedy components. The results of the IC updates will be summarized in the next five-year review. The results of the evaluation on the updated arsenic standard will also be summarized in the next five-year review.

XI Next Review

The next five-year review for the WIL site is required by September 2011, five years from the date of this review.